Amendments to the Claims

We enclose herewith additional dependent claims.

1. (Previously Amended) A multicarrier transmitter for a waveguide communication system including:
   - a multicarrier-signal generator capable of generating a plurality of carrier signals,
   - an information-signal modulator capable of redundantly modulating the carrier signals with at least one information signal, and
   - a coupler capable of coupling the modulated carrier signals into a communication channel.
2. (Original) The multicarrier transmitter recited in claim 1 wherein at least one of the multicarrier-signal generator and the information signal modulator provide the carriers with a predetermined relative phase.
3. (Original) The multicarrier transmitter recited in claim 1 wherein the modulator is capable of encoding the information signal.
4. (Original) The multicarrier transmitter recited in claim 1 wherein the signal modulator includes an address applicator for providing virtual switching.
5. (Original) A receiver system for a waveguide communication system including:
   - a multicarrier phase adjuster capable of providing phase adjustment to received multicarrier signals,
   - a combiner capable of combining the phase-adjusted multicarrier signals, and
   - a time-domain receiver capable of processing the combined signals.
6. (Original) The receiver system recited in claim 5 wherein the multicarrier phase adjuster includes an optical-to-RF converter.
7. (Original) The receiver system recited in claim 5 wherein the multicarrier phase adjuster includes a filter bank capable of separating the received multicarrier components with respect to frequency.
8. (Original) The receiver system recited in claim 5 wherein the multicarrier phase adjuster is capable of providing a zero-phase relationship to the received signals.

9. (Previously Amended) A method of virtual switching including:
   - providing for generating a plurality of carriers, the carriers being modulated with an information signal
   - providing for phasing of the carriers with a phase relationship that defines an address, the phase relationship matching a dispersion profile of a waveguide with respect to a predetermined distance for providing a predetermined phase relationship of the signal at one or more predetermined locations along the waveguide, and
   - providing for coupling the modulated phase-shifted carriers into the waveguide.
10. (Original) A method of addressing a multicarrier signal with respect to a dispersion profile in a dispersive waveguide including:
    - providing for adjustment to the multicarrier signal frequencies to provide a phase relationship that matches the dispersion profile of the waveguide, and
    - providing for selection of at least one set of relative phases between the carrier signals that matches at least one dispersion profile for a predetermined length of the waveguide.
11. (Original) A multicarrier signal generator including:
    - an information signal source capable of providing at least one information signal,
    - an encoder capable of processing the information signal(s) for producing at least one information bit,
    - a predistortion device capable of providing distortion compensation to the information bits,
    - a multicarrier signal generator capable of generating a plurality of carriers, the carriers being modulated by the encoder with the information bits, and
    - a converter capable of up converting or down converting the modulated carriers.
12. (Previously Canceled) A transport-medium interface for converting a multicarrier waveguide signal to a multicarrier wireless signal, the transport-medium interface including:

- a receiver coupled to a waveguide capable of receiving multicarrier optical waveguide signals,
- an optical-to-RF converter capable of converting the optical waveguide signals to RF wireless signals, and
- a coupler capable of coupling the RF signals into a wireless channel.

13. (Original) A method of providing for adaptation of a multicarrier protocol to generate a composite signal characterized by a predetermined time-domain profile, the method including:
    - providing for generation of a plurality of carrier signals,
    - providing for adjustment of at least one of a set of amplitude and phase of at least one of the carrier signals, and
    - providing for superposition of the carriers to generate a time-domain signal.
14. (Original) A method for increasing bandwidth efficiency in a waveguide including:
    - providing for generation of a plurality of sets of multicarrier signals, each of the sets comprising a plurality of multicarrier signals having a plurality of frequencies,
    - providing for selection of a relative-phase relationship within each of the sets, each of the relative-phase relationships matching a dispersion relationship with respect to at least one address of a desired receiver,
    - providing for redundant modulation of the multicarrier signals in each set, and
    - providing for transmission of a portion of each set corresponding to its relative-phase relationship.
15. (Original) An address applicator capable of being used as a virtual switch in a dispersive waveguide, the applicator including:
    - a relative-phase selector capable of selecting at least one relative phase between a plurality of carrier signals having different frequencies, the relative phase corresponding to at least one virtual address of a desired receiver, and
    - a packet generator capable of generating at least one packet containing a plurality of the carrier signals, the carrier signals having at least one of the relative phases.

16. (Original) A method of providing for reception of a plurality of redundantly modulated multicarrier signals including:
    - providing for adjustment of the phase of a plurality of the multicarrier signals received from a communication channel to provide at least one predetermined phase relationship,
    - providing for combining of the phase-adjusted received signals to provide at least one time-domain signal, and
    - providing for processing of the time-domain signal(s) in a time-domain receiver to detect at least one information signal modulated on the multicarrier signals.
17. (Original) A multi-user detector for communication signals in a waveguide, the detector including:
    - a phase-domain sampler coupled to the waveguide, the sampler capable of receiving a plurality of transmit signals from the waveguide for generating a plurality of received signals including at least one desired signal and at least one interfering signal,
    - a weighting system coupled to the sampler capable of receiving the received signals, the weighting system providing at least one weight to at least one of the received signals, and
    - a combiner coupled to the weighting system capable of combining the weighted, received signals to cancel at least one of the interfering signals to enhance at least one of the desired signals.
18. (Original) A multi phase-space detector capable of detecting a plurality of information signals modulated into a plurality of signal phase-spaces, the detector including:
    - a coupler coupled to a communication channel capable of coupling a plurality of transmitted signals out of the channel, the coupler providing a plurality of coupled signals having at least one distributed frequency characteristic,
    - a frequency sampler capable of receiving the coupled signals and separating the coupled signals into a plurality of frequency components,

- a phase processor capable of receiving the frequency components and applying a plurality of phase adjustments to the frequency components, and
- a combining circuit capable of combining the plurality of phase-adjusted frequency components to generate the plurality of information signals.

19. (Original) A multicarrier transmitter capable of generating a coded multicarrier signal, the transmitter including:
    - a carrier-signal generator capable of generating a plurality of carrier signals,
    - a carrier-code generator capable of modulating the carrier signals with a carrier code, and
    - an information-signal modulator capable of redundantly modulating the carrier signals with an information signal.
20. (Original) A method of transmitting cascaded-interferometry communication signals, the method including:
    - providing for application of weights to a plurality of versions of at least one information signal,
    - providing for coding the weighted information signals with at least one code having at least one diversity parameter,
    - providing for application of a diversity process to the coded signals based on at least one additional diversity parameter, and
    - providing for coupling the processed, coded signals into a communication channel.
21. (Original) A communication system capable of providing channel reuse by canceling interfering signals, the system including:
    - at least one communication channel having at least one receiver node and at least one cancellation node,
    - a cancellation channel coupled between the nodes,
    - a receiver coupled to the receiver node capable of receiving at least one receive signal and coupling the at least one received signal into the cancellation channel to provide a cancellation signal, and
    - a transmitter coupled to the cancellation channel and the communication channel, the transmitter capable of receiving the cancellation signal from the

cancellation channel and coupling the cancellation signal into the communication channel to cancel interference resulting from the receive signal.

22. (Original) A spatial demultiplexing process comprising:
    - providing for reception of a plurality of multicarrier signals modulated with a plurality of interfering information signals,
    - providing for separation of the carrier signals into a plurality of discreet components, the components being information-modulated components,
    - providing for extraction of values of the information signals from the information-modulated components, and
    - providing for separation of at least one of the information signals from at least one interfering signal.

23. (Original) A receiver capable of demultiplexing a plurality of information-modulated multicarrier signals, the receiver including:
    - at least one sampler capable of providing at least one sample of the information-modulated multicarrier signals,
    - a separator capable of separating the information-modulated multicarrier signals into a plurality of information-modulated carrier signals, and
    - a multi-user detector capable of receiving the information-modulated carrier signals and separating at least one information signal from at least one interfering signal.

24. (Original) A multicarrier receiver including:
    - a sampler capable of sampling a plurality of information-modulated multicarrier signals with respect to a plurality of different values of at least one diversity parameter for generating a plurality of sets of received multicarrier signals,
    - a separator capable of separating the multicarrier signals in each set into a plurality of information-modulated carrier signals,
    - a multi-user detector capable of processing the information-modulated carrier signals in each set to generate a plurality of algebraically unique combinations of information signals, and

- a combiner capable of combining the sets of algebraically unique combinations to calculate the value of at least one information signal.

25. (Original) A reception method capable of providing for separation of at least one information signal from at least one interfering signal, the reception method including:
    - providing for reception of a plurality of sampled signals having at least one information signal and at least one interference signal,
    - providing for processing the sampled signals into a plurality of algebraically unique equations having at least one unknown information signal and at least one interference signal,
    - providing for applying a nonlinear process to at least one of the equations to generate at least one additional algebraically unique equation,
    - providing for solving the algebraically unique equations to derive at least one non-explicit relation of at least one unknown signal, and
    - providing for inputting possible values of at least one unknown signal to explicitly solve the at least one non-explicit relation.
26. (Original) A receiver capable of receiving and separating a plurality of information signals, the receiver including:
    - a sampler capable of sampling received information signals to produce at least one algebraically unique combination of information signals,
    - a nonlinear processor capable of applying a nonlinear process to at least one of the algebraically unique combination of information signals to increase the number of combinations, and
    - a multi-user detector capable of providing information about at least one of the information signals in order to calculate at least one information-signal value.
27. (Original) A reception method comprising:
    - providing for reception of a plurality of multicarrier signals modulated with at least one information signal and at least one interfering signal wherein the multicarrier signals are separable with respect to at least one diversity parameter, and

- providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter that is different from the at least one diversity parameter.

28. (Original) A multicarrier receiver including:
    - a sampler capable of sampling a plurality of received multicarrier signals with respect to at least one diversity parameter,
    - a combiner capable of combining the multicarrier signals, and
    - a multi-user detector capable of processing the combined multicarrier signals in the time domain to separate at least one information signal from at least one interference signal.

29. (Previously Amended) A multicarrier reception method including:
    - providing for reception of a plurality of information-modulated multicarrier signals from a communication channel, the multicarrier signals being modulated by at least one information signal and at least one interfering signal,
    - providing for interferometry multiplexing of the received multicarrier signals in at least one diversity-parameter domain to obtain benefits of enhanced capacity, and
    - providing for diversity combining of the received multicarrier signals in at least one diversity-parameter domain to obtain benefits of diversity.

30. (Original) A multicarrier transmitter including:
    - a multicarrier-signal generator capable of generating a plurality of multicarrier signals,
    - a modulator capable of modulating a plurality of sets of multicarrier signals with at least one information signal, each set including a plurality of multicarrier signals, and
    - a coupler capable of coupling the modulated sets of multicarrier signals into a communication channel.

31. (Previously Amended) A multicarrier reception method including:
    - providing for reception of a plurality of information-modulated sets of multicarrier signals, each set containing a plurality of multicarrier signals,

each of the multicarrier signals having a different value of at least one diversity parameter, each set being characterized by a different value of at least one diversity parameter,

- providing for separating the sets,
- providing for combining the information-modulated multicarrier signals in each set to provide a plurality of information-modulated sets, and
- providing for interferometry demultiplexing the information-modulated sets to separate at least one information signal from at least one interference signal.

32. (Original) A feedback method for providing control of differential shift-key constellations and spatial gain distributions of received multicarrier signals to optimize received signal quality, the feedback method including:
    - providing for measuring values of received signals with respect to at least one measurement parameter,
    - providing for calculating an optimal distribution of interferometry channels and differential-modulation channels with respect to at least one of a set of power-efficiency parameters and received signal level parameters, and
    - providing for generating a feedback signal to adjust transmission characteristics with respect to the calculated optimal distribution.

33. (New) The multicarrier signal generator recited in Claim 11 wherein the encoder is adapted to perform at least one of a set of coding processes, including spread-spectrum coding, error correction coding, and encryption.
34. (New) The multicarrier signal generator recited in Claim 11 wherein the encoder includes at least one N-point transform, including a Discrete Fourier Transform (DFT), a Fast Fourier Transform (FFT), a Walsh Transform (WT), a Hilbert Transform (HT), a Randomizer Transform (RT), a Permutator Transform (PT), an Inverse DFT, an Inverse FFT, an Inverse WT, an Inverse HT, an Inverse RT, an Inverse PT.
35. (New) The multicarrier signal generator recited in Claim 11 wherein the multicarrier signal generator is adapted to generate a number N of orthogonal multi-frequency signals having a carrier frequency separation of f_s.

36. (New) The multicarrier signal generator recited in Claim 11 wherein the multicarrier signal generator is adapted to provide the carrier signals with at least one of a set of orthogonalizing properties, the set including different frequencies, different polarizations, different phase spaces, different transmission locations, different beam directionalities, and different spread-spectrum codes.
37. (New) The multicarrier signal generator recited in Claim 11 wherein the multicarrier signal generator is adapted to generate at least one of a set of frequency-diverse signals, including a multi-frequency signal, a frequency-hopped signal, and a chirped signal.
38. (New) The multicarrier signal generator recited in Claim 11 wherein the multicarrier signal generator is adapted to generate the carriers with respect to a predetermined multicarrier communication protocol, including OFDM and MC-CDMA.
39. (New) The multicarrier signal generator recited in Claim 11 wherein the multicarrier signal generator is implemented via at least one digital process, including an inverse discreet Fourier transform and an inverse fast Fourier transform.
40. (New) The method recited in Claim 13 wherein providing for generation of a plurality of carrier signals includes providing the carrier signals with different orthogonalizing properties.
41. (New) The method recited in Claim 13 wherein providing for generation of a plurality of carrier signals includes providing for frequency hopping the carriers.
42. (New) The method recited in Claim 13 wherein providing for generation of a plurality of carrier signals includes providing a frequency spacing between the carrier signals such that the bandwidth spanned by the carrier signals is larger than at least one predetermined channel's coherence bandwidth.
43. (New) The method recited in Claim 13 wherein at least one of providing for adjustment of at least one of a set of amplitude and phase of at least one of the carrier signals and providing for superposition of the carriers includes adapting the superposition of the carriers to generate at least one of a CDMA signal and a TDMA signal.

44. (New) The method recited in Claim 13 wherein providing for adjustment of at least one of a set of amplitude and phase of at least one of the carrier signals includes providing complex code chips to the carrier signals.

45. (New) The method recited in Claim 13 wherein providing for adjustment of at least one of a set of amplitude and phase of at least one of the carrier signals includes modulating at least one information symbol onto the carrier signals.

46. (New) The method recited in Claim 13 wherein the carrier signals include a number N of orthogonal multi-frequency signals having a carrier frequency separation of f_s, and providing for adjustment of at least one of a set of amplitude and phase of at least one of the carrier signals includes mapping up to N information signals to N orthogonal pulses per symbol period interval $T = 1/f_s$ wherein the pulses are generated from a superposition of the carriers.

47. (New) The method recited in Claim 13 wherein providing for generation of a plurality of carrier signals includes providing for an inverse Fourier transform.

48. (New) The method recited in Claim 13 wherein providing for generation of a plurality of carrier signals includes providing for orthogonal frequency division multiplexing.

49. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein at least one of providing for adjustment and providing for combining includes separating the multicarrier signal into a plurality of carrier frequency components.

50. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein providing for adjustment includes sampling the multicarrier signals.

51. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein the redundantly modulated multicarrier signals are at least one of a TDMA signal, a DS-CDMA signal, an MC-CDMA signal, an FHSS signal, and an OFDM signal.

52. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein providing for adjustment and providing for combining are implemented with a matched filter.

53. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein providing for adjustment and providing for combining are adapted to project the redundantly modulated multicarrier signals onto at least one orthonormal basis.
54. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein at least one of providing for adjustment and providing for combining are adapted to compensate for channel distortion.
55. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein providing for combining includes performing at least one of a set of combining processes, including co-phasing, selective combining, maximal-ratio combining, equal-gain combining, and maximal-selection combining.
56. (New) The method of providing for reception of a plurality of redundantly modulated multicarrier signals recited in Claim 16 wherein at least one of providing for adjustment of the phase, providing for combining, and providing for processing of the time-domain signal(s) is implemented digitally.
57. (New) The multi phase-space detector recited in Claim 18 wherein the coupler includes an antenna array.
58. (New) The multi phase-space detector recited in Claim 18 wherein the frequency sampler is implemented with a filter bank.
59. (New) The multi phase-space detector recited in Claim 18 wherein the frequency sampler includes a signal processor adapted to perform at least one Fourier transform.
60. (New) The multi phase-space detector recited in Claim 18 wherein the phase processor includes a decoder.
61. (New) The multi phase-space detector recited in Claim 18 wherein the phase processor is adapted to perform at least one N-point invertible transform.
62. (New) The multi phase-space detector recited in Claim 18 wherein the combining circuit includes at least one decision module adapted to perform at least one of multi-user detection and multi-channel detection.

63. (New) The multi phase-space detector recited in Claim 18 wherein the combining circuit is adapted to perform at least one of a set of combining processes, including co-phasing, selective combining, maximal-ratio combining, equal-gain combining, and maximal-selection combining.

64. (New) The multi phase-space detector recited in Claim 18 wherein at least one of the frequency sampler, the phase processor, and the combining circuit are implemented with a digital signal processor.

65. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is adapted to provide the carrier signals with at least one of a set of orthogonalizing properties, the set including different frequencies, different polarizations, different phase spaces, different transmission locations, different beam directionalities, and different spread-spectrum codes.

66. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is adapted to generate at least one of a set of frequency-diverse signals, including at least one multi-frequency signal, at least one frequency-hopped signal, and at least one chirped signal.

67. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is adapted to generate signals that comply with a predetermined multicarrier communication protocol, including OFDM and MC-CDMA.

68. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-code generator is adapted to provide for at least one multiple-access scheme, including code division multiple access, frequency division multiple access, and time division multiple access.

69. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-code generator is adapted to modulate the carriers with at least one set of complex code values.

70. (New) The multicarrier transmitter recited in Claim 70 wherein the carrier-code generator is adapted to code-division multiplex a plurality of data symbols.

71. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-code generator is adapted to modulate the carriers with at least one set of code values

adapted to synthesize at least one of a direct-sequence CDMA signal and a TDMA signal from a superposition of the carriers.

72. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is adapted to generate a number N of orthogonal multi-frequency signals having a carrier frequency separation of f_s, and the carrier-code generator and the information-signal modulator being adapted to provide for up to N orthogonal information-modulated pulse waveforms from a superposition of the carriers within a given symbol interval $T = 1/f_s$.
73. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is adapted to generate a plurality of multi-frequency carrier signals distributed over at least one frequency band whose bandwidth exceeds a given communication channel's coherence bandwidth.
74. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is adapted to provide the plurality of carrier signals with at least one set of diversity parameters that provide uncorrelated fading between at least two of the carrier signals.
75. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is implemented via at least one digital process, including an inverse discreet Fourier transform and an inverse fast Fourier transform.
76. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator is implemented with an invertible transform, and at least one of the carrier-code generator and the information-signal modulator includes at least one output coupled to a plurality of input bins of the invertible transform.
77. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-code generator includes at least one N-point transform, including a Discrete Fourier Transform (DFT), a Fast Fourier Transform (FFT), a Walsh Transform (WT), a Hilbert Transform (HT), a Randomizer Transform (RT), a Permutator Transform (PT), an Inverse DFT, an Inverse FFT, an Inverse WT, an Inverse HT, an Inverse RT, an Inverse PT.
78. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-code generator includes a multi-stage code generator.

79. (New) The multicarrier transmitter recited in Claim 19 wherein the carrier-signal generator includes a filter adapted to filter at least one of the carrier signals.
80. (New) The method of transmitting cascaded-interferometry communication signals recited in Claim 20 wherein providing for coding includes providing at least one complex code to the weighted information signals.
81. (New) The method of transmitting cascaded-interferometry communication signals recited in Claim 20 wherein providing for coding includes performing at least one N-point invertible transform.
82. (New) The spatial demultiplexer process recited in Claim 22 wherein at least one of providing for separation of the carrier signals into a plurality of discreet components and providing for extraction are implemented with an invertible transform.
83. (New) The spatial demultiplexer process recited in Claim 22 wherein providing for separation of at least one of the information signals from at least one interfering signal includes at least one of multi-user detection and multi-channel detection.
84. (New) The receiver recited in Claim 23 wherein at least one of the sampler and the separator includes at least one digital signal processor adapted to perform an N-point invertible transform.
85. (New) The receiver recited in Claim 23 wherein the separator includes a filter bank.
86. (New) The receiver recited in Claim 23 wherein the multi-user detector includes at least one combiner adapted to combine the information-modulated carrier signals.
87. (New) The receiver recited in Claim 23 wherein at least one of the sampler, the separator, and the multi-user detector are implemented with a digital signal processor.
88. (New) The reception method recited in Claim 27 wherein the plurality of multicarrier signals are multi-frequency carriers and providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes combining the multicarrier signals to generate at least one superposition signal and processing the at least one superposition signal in the time domain.
89. (New) The reception method recited in Claim 27 wherein providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes compensating for channel distortions.

90. (New) The reception method recited in Claim 27 wherein providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes filtering the multicarrier signals.
91. (New) The reception method recited in Claim 27 wherein providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes providing for digital signal processing.
92. (New) The reception method recited in Claim 27 wherein providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes performing at least one type of Fourier transform.
93. (New) The reception method recited in Claim 27 wherein providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes providing for at least one of multi-user detection and multi-channel detection.
94. (New) The reception method recited in Claim 27 wherein providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter includes performing at least one of a set of processes, including decoding and demodulating the multicarrier signals.
95. (New) The reception method recited in Claim 27 wherein the step of providing for processing of the multicarrier signals with respect to at least one alternative diversity parameter is adapted to process at least one frequency-hopped multicarrier signal.
96. (New) The multicarrier receiver recited in Claim 28 wherein the sampler includes a filter bank.
97. (New) The multicarrier receiver recited in Claim 28 wherein the sampler is adapted to adjust relative phases of sampled signals to reconstruct time-domain signals occurring in a plurality of time intervals.
98. (New) The multicarrier receiver recited in Claim 28 wherein the multi-user detector is implemented with a phase-space decoder.
99. (New) The multicarrier receiver recited in Claim 28 wherein the sampler is adapted to sample at least one multicarrier frequency-hopped signal.

100. (New) The multicarrier reception method recited in Claim 29 wherein providing for reception of a plurality of information-modulated multicarrier signals includes providing for filtering the plurality of information-modulated multicarrier signals.

101. (New) The multicarrier reception method recited in Claim 29 wherein providing for reception of a plurality of information-modulated multicarrier signals includes separating the plurality of information-modulated multicarrier signals from at least one other signal.

102. (New) The multicarrier reception method recited in Claim 29 wherein providing for reception of a plurality of information-modulated multicarrier signals includes separating the plurality of information-modulated multicarrier signals into a plurality of frequency components for generating the received multicarrier signals.

103. (New) The multicarrier reception method recited in Claim 29 wherein providing for reception of a plurality of information-modulated multicarrier signals includes applying at least one Fourier transform to the plurality of information-modulated multicarrier signals for generating the received multicarrier signals.

104. (New) The multicarrier reception method recited in Claim 29 wherein providing for reception of a plurality of information-modulated multicarrier signals is adapted to process at least one of a set of multicarrier signal formats, including frequency-hopped signals and OFDM signals.

105. (New) The multicarrier reception method recited in Claim 29 wherein providing for interferometry multiplexing of the received multicarrier signals includes adjusting signal phases of the received multicarrier signals such that providing for diversity combining of the received multicarrier signals produces a sequence of information-modulated pulse waveforms.

106. (New) The multicarrier reception method recited in Claim 29 wherein providing for diversity combining includes providing for at least one of a set of diversity combining processes, including co-phasing, selective combining, maximal-ratio combining, equal-gain combining, and maximal-selection combining.

107. (New) The multicarrier reception method recited in Claim 29 wherein providing for interferometry multiplexing of the received multicarrier signals includes providing for a decoding process that employs an invertible transform.

108. (New) The multicarrier reception method recited in Claim 29 wherein at least one of providing for reception of a plurality of information-modulated multicarrier signals, providing for diversity combining, and providing for interferometry multiplexing of the received multicarrier signals includes compensating for channel distortions.

109. (New) The multicarrier reception method recited in Claim 29 wherein at least one of providing for reception of the plurality of information-modulated multicarrier signals, providing for diversity combining, and providing for interferometry multiplexing of the received multicarrier signals is adapted to project the plurality of information-modulated multicarrier signals onto at least one orthonormal basis of at least one transmitted signal.

110. (New) The multicarrier transmitter recited in Claim 30 wherein the multicarrier-signal generator is adapted to frequency hop the plurality of multicarrier signals.

111. (New) The multicarrier transmitter recited in Claim 30 wherein the multicarrier-signal generator includes a frequency-diverse transmission source.

112. (New) The multicarrier transmitter recited in Claim 30 wherein the multicarrier-signal generator is adapted to frequency interleave subcarriers of the plurality of multicarrier signals.

113. (New) The multicarrier transmitter recited in Claim 30 wherein the multicarrier-signal generator and the modulator are adapted to generate at least one multicarrier signal having a superposition characterized by at least one of a set of single-carrier signal formats, including a TDMA signal and a CDMA signal.

114. (New) The multicarrier transmitter recited in Claim 30 wherein the modulator includes at least one coder adapted to modulate at least one set of complex code chips onto at least one of the plurality of sets of multicarrier signals.

115. (New) The multicarrier transmitter recited in Claim 30 wherein the modulator is adapted to modulate channel compensation values onto at least one of the plurality of sets of multicarrier signals.

116. (New) The multicarrier transmitter recited in Claim 30 wherein the multicarrier signal generator is adapted to generate the plurality of multicarrier signals having a number N of subcarriers with an orthogonal carrier frequency separation of f_s, and the

modulator is adapted to provide for up to N orthogonal information-modulated pulse waveforms from a superposition of subcarriers in at least one of the plurality of sets of multicarrier signals within a given symbol interval $T = 1/f_s$.

117. (New) The multicarrier transmitter recited in Claim 30 wherein at least one of the multicarrier signal generator and the modulator includes at least one signal processor adapted to perform an inverse Fourier transform.

118. (New) The multicarrier transmitter recited in Claim 30 wherein the coupler includes an antenna array.

119. (New) The multicarrier reception method recited in Claim 31 wherein providing for reception includes providing at least one N-point invertible transform.

120. (New) The multicarrier reception method recited in Claim 31 wherein providing for separating the sets includes separating the sets with respect to at least one of a set of diversity parameter values, including different frequencies, different time intervals, different polarizations, and different spatial locations.

121. (New) The multicarrier reception method recited in Claim 31 wherein providing for separating the sets includes performing at least one invertible transform.

122. (New) The multicarrier reception method recited in Claim 31 wherein providing for combining includes performing at least one invertible transform.

123. (New) The multicarrier reception method recited in Claim 31 wherein providing for interferometry demultiplexing includes at least one of a set of signal-processing operations, including decoding, multi-channel detection, and multi-user detection.